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A NEW SPECIES OF *MESODINA* MEYRICK FROM THE NORTHERN TERRITORY (LEPIDOPTERA: HESPERIIDAE)

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Abstract

Mesodina gracillima sp. n. is described from the Northern Territory. Adults and the male and female genitalia are figured and compared with the other species of *Mesodina* Meyrick. The status of *M. cyanophracta* Lower stat. rev. is discussed.

Introduction

In 1933 Mr T. G. Campbell collected a female specimen, closely resembling *Mesodina halyzia* (Hewitson), at Fort Dundas, Melville Island, Northern Territory. The specimen was sent to Dr G. A. Waterhouse who, in his subsequent publications, made no reference to it and no doubt believed that the locality, distant from any previously known locality, required confirmation. He may also have known that botanists at that time were unaware that a species of *Patersonia* (Iridaceae), the foodplant of other species of *Mesodina*, occurred in the Northern Territory. Between 1968 and 1970 F. and W. Omer-Cooper obtained four further specimens from the area between Oenpelli and the Blyth River. Three of these and the Campbell specimen were recorded by Peters (1969) who incorrectly sexed two of them. Since then larvae have been found and two further adults have been reared. Specht and Mountford (1958) mentioned the rediscovery of *Patersonia macrantha* Benth. in the Northern Territory and explained how the type locality of the plant was incorrectly recorded as Western Australia. Since then the plant has been recorded many times in the area where the *Mesodina* specimens have been taken (Geerink 1974).

Specimens of *Mesodina* from the Northern Territory are superficially very similar to specimens of *M. halyzia* from south-eastern Australia. Common and Waterhouse (1981) considered that they may represent a separate subspecies. However, the genitalia in both sexes show marked differences from *M. halyzia*, sufficient to indicate that the Northern Territory population is a separate species. This has prompted a reconsideration of the status of *M. halyzia* var. *cyanophracta* Lower. Waterhouse and Lyell (1914) and subsequent authors treated it as a subspecies of *M. halyzia* but Lower (1911) foreshadowed that its status may need to be reconsidered in the future.

Key to the species of *Mesodina* Meyrick

1. Underside of fore wing with large orange patch in cell extending almost to base . . . . . *aeluropis* Meyrick
— Underside of fore wing without large orange patch in cell 2
2. Underside of hind wing bluish grey . . . . *cyanophracta* Lower stat. rev.
— Underside of hind wing reddish grey 3

3. Male fore wing almost always without small subapical spots above . . . . . *halyzia* (Hewitson)

– Male fore wing with one or two small subapical spots above (in the two males known) . . . . . *gracillima* sp. n.

Mesodina gracillima sp. n.

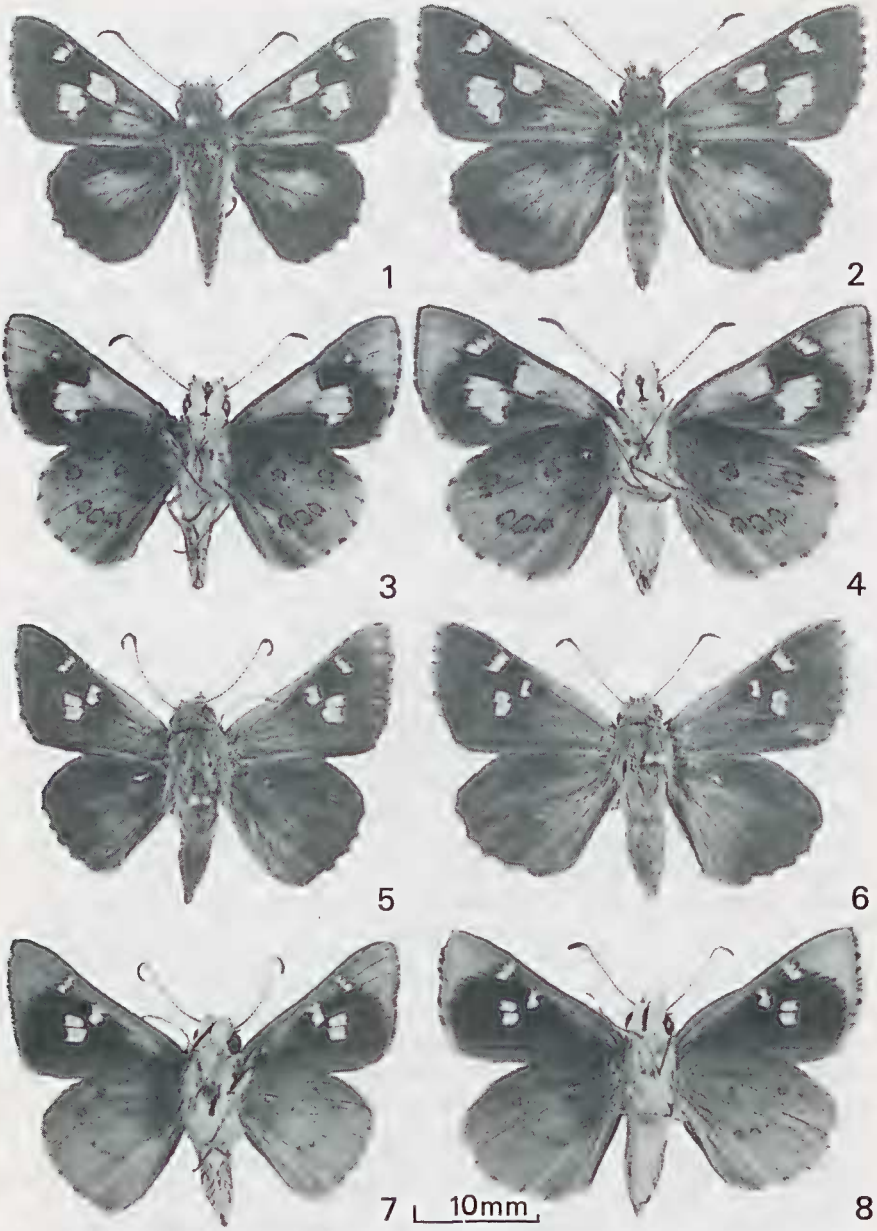
(Figs 13-16, 20, 24)

Types:–*Holotype* ♂ labelled "12.18S 133.17E 15 km SW by S of Nimbuwah Rock, N.T. Emg 13 Jun 1973 E. D. Edwards and M. S. Upton Genitalia Slide M582 Reg. No. 3320", in Australian National Insect Collection. 1 ♂, 5 ♀♀ *paratypes*: 1 ♂ "Maningrida, N.T. 1/8 August 1968 F. Omer-Cooper"; 1 ♀ "Cadell-Blyth R. area N.T. 7.10.1968 F. Omer-Cooper"; 1 ♀ "Fort Dundas, Melville Island N.T. 3 Oct 1933 T. G. Campbell KL 09818 G. A. Waterhouse Collection"; 1 ♀ "Maningrida, N.T. 25/31 July 1968 F. Omer-Cooper"; 1 ♀ "10 mi. NE of Oenpelli, N.T. 5 Dec 1970 W. Omer-Cooper"; all in Australian Museum; 1 ♀ "13.20S 132.30E 16 km NE by N of UDP Falls N.T. Emg 6 July 1980 L. Craven, Larva coll 5 Jun 1980, spin web at shelter entrance 9 Jun 1980 from within Kakadu Nat. Pk. Larva in shelter on *Patersonia macrantha*" in Australian National Insect Collection.

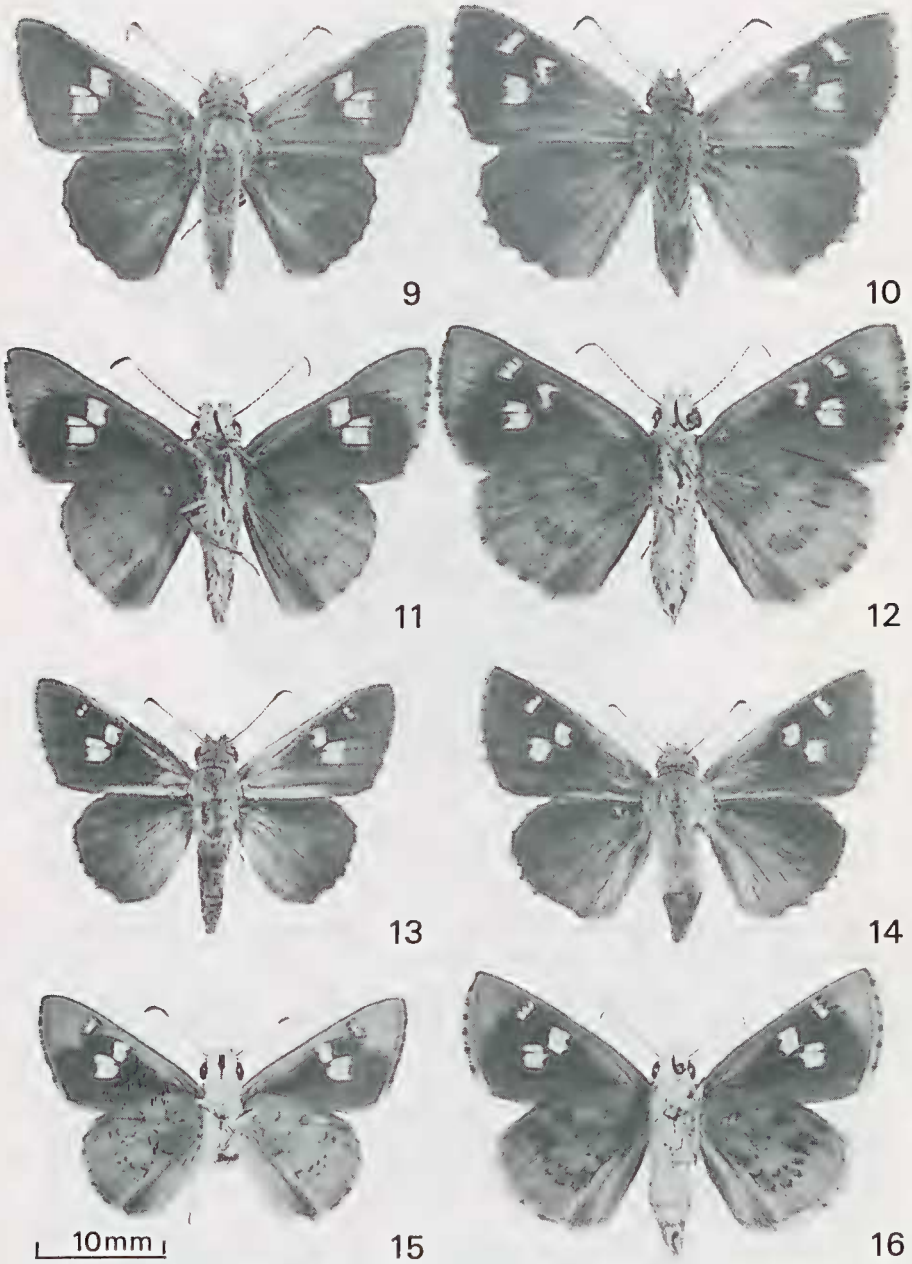
Distribution:–The species is known from Melville Island and in western Arnhem Land from the Blyth River area in the east to the Oenpelli area in the west and south to near UDP Falls.

Male (Figs 13,15):–Head reddish grey with some black scales, antennal shaft black above, pale yellow ringed with black beneath, apiculus blunt, black anteriorly, pale yellow posteriorly, nudum 15 segmented; labial palpus with second segment reddish grey above, white beneath, terminal segment brown. Thorax above grey, beneath white; legs pale reddish grey above, white beneath. Abdomen above grey, beneath white; legs pale reddish grey above, white beneath. Abdomen above grey, beneath white with reddish grey on sides. Fore wing costa almost straight, apex moderately pointed, termen almost straight; above dark brown with scattered pale grey scales towards base particularly along costa and dorsum; three large very pale yellow spots, one at end of cell, one between M_3 and CuA_1, one between CuA_1 and CuA_2, one or two small subapical very pale yellow spots; cilia pale grey, paler at tornus; beneath grey-brown, costa and apex reddish grey, spots as above, cilia grey brown, at tornus pale grey. Hind wing rounded, slightly truncate at tornus; above dark brown, some paler hair scales towards base, cilia pale grey; beneath reddish grey, two rows of reddish grey spots outlined in dark brown, one median the other submedian, anal area dark grey, paler proximally, cilia pale grey. Fore wing length 14 mm. *Genitalia* (Fig. 20). Combined tegumen and uncus long and slender terminating in a single down-curved tip; gnathos with fine spinules sparse and inconspicuous. Valva with ampulla well developed with truncate tip, harpe narrow, toothed, dorsal surface with toothed projection; saccus well developed. Aedeagus long and slender.

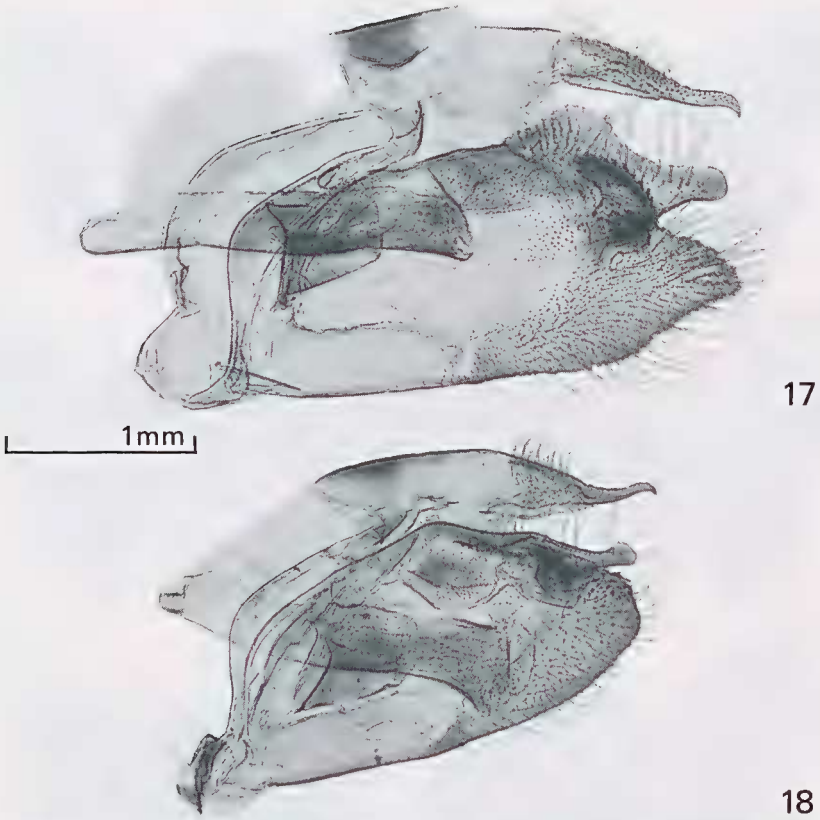
Female (Figs 14, 16).–Similar to male but fore wing with apex and termen more rounded, three subapical pale yellow spots. Fore wing length 14-16 mm.



Figs 1-8. Males odd numbers and females even numbers; upperside and underside: (1-4) *M. aeluropis*; (5-8) *M. cyanophracta* stat. rev.



Figs 9-16. Males odd numbers and females even numbers; upperside and underside: (9-12) *M. halyzia*; (13-16) *M. gracillima* sp. n.



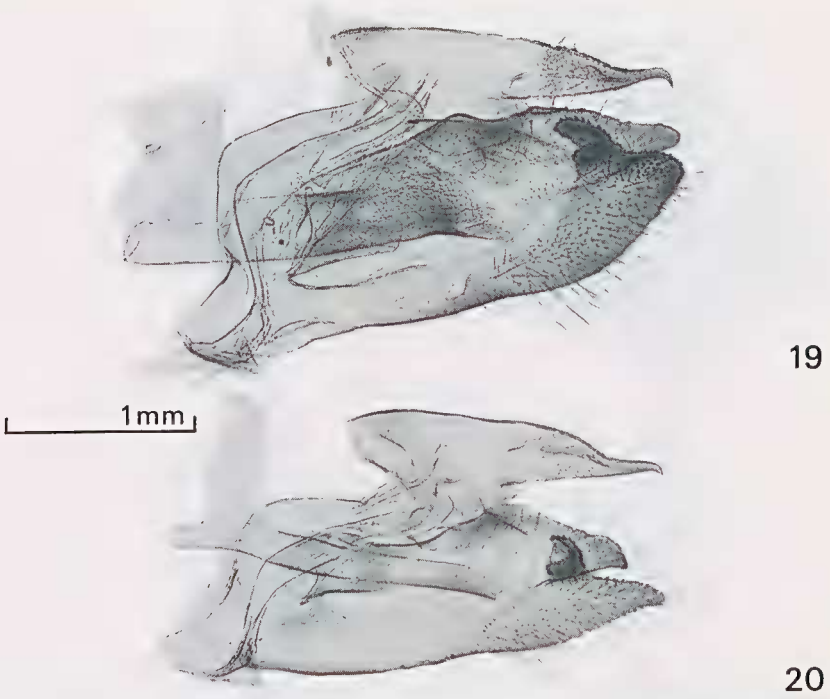
Figs 17, 18. Male genitalia with left valva removed: (17) *M. aeluropis* ANIC Slide M581; (18) *M. cyanophracta* stat. rev. ANIC Slide M572.

Genitalia (Fig. 24). Sterigma elongate, ductus bursae narrow, corpus bursae with long narrow posterior section, accessory pouch well developed.

Derivation:—The name *gracillima* is Latin for most slender, referring in particular to the aedeagus and the ductus bursae as well as the appearance of the adult.

Life History:—The species has been collected in June, July, August, October and December. Many larvae were found in late May but no adults were seen suggesting that few if any were flying at that time. However known localities are relatively inaccessible during the wet season from December to May and the dates may reflect this.

The early stages are very similar to those of *Mesodina halyzia* and *M. cyanophracta*. The larvae rest head downwards in shelters on the foodplant. Larvae have been found on the foodplant growing in flat terrain with deep,



Figs 19, 20. Male genitalia with left valva removed: (19) *M. halyzia* ANIC Slide M580; (20) *M. gracillima* sp. n. ANIC Slide M582.

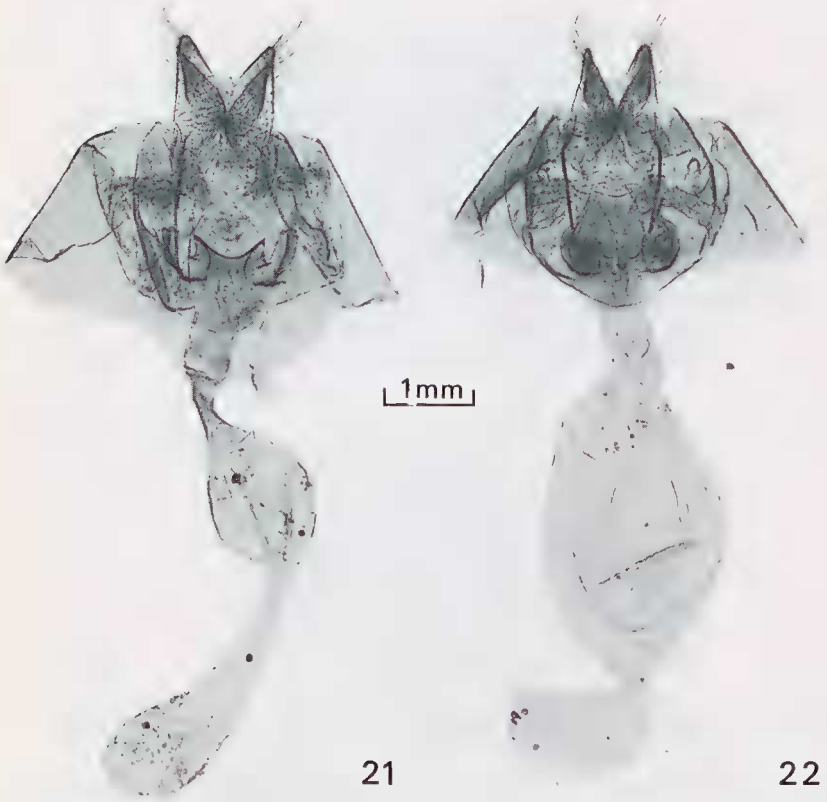
white sandy soil, apparently weathered from sandstones, supporting a *Eucalyptus* woodland with a sparse grass and herb understory.

Foodplant:–*Patersonia macrantha* Benth. (Iridaceae).

Discussion

Meyrick (1901) described the genus *Mesodina* to include the two species *M. halyzia* (Hewitson) (type species by original designation) and *M. aeluropis* Meyrick. Characters to distinguish *Mesodina* from other trapezitine genera are given by Edwards (1979).

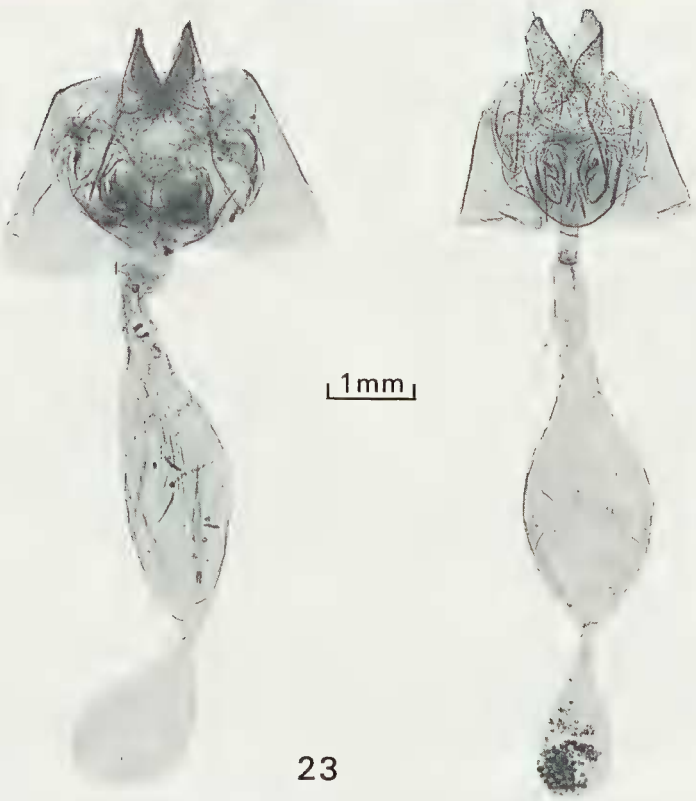
I have examined the holotype male of *M. halyzia* in the British Museum (Natural History). Waterhouse (1937) rejected the locality on the label of Port Denison (Bowen Q.) but the holotype represents the species from south-eastern Australia to which the name has been applied. Lower (1911) described *M. cyanophracta* from five specimens and a male was selected as the holotype by Waterhouse (1933). According to the International Code of Zoological Nomenclature this is a valid designation of a lectotype. There are two specimens labelled as from the type series in the South Australian Museum one is a



Figs 21, 22. Female genitalia: (21) *M. aeluropis* ANIC Slide M585; (22) *M. cyanophracta* stat. rev. ANIC Slide M583.

female and the other a male labelled "*Mesodina cyanophracta* Lower male TYPE Perth W.A. L3758" and on the reverse "N. B. Tindale Nov. 1948 replacing label destroyed by Wyatt". The male specimen has two other labels "Perth W.A." and "Passed through C. W. Wyatt theft coll. 1946-1947". As many specimens stolen by Wyatt had the labels removed there must remain some doubt as to the authenticity of the specimen. There is, however, no reason to doubt that *M. cyanophracta* is the correct name for the species from south-western Australia.

In adult males of *M. cyanophracta* and *M. aeluropis* (Figs 1, 3, 5, 7) three pale subapical spots are almost always present on the fore wing and almost always absent in *M. halyzia* (Figs 9, 11). The two males known of *M. gracillima* have one or two subapical spots. The colour of the underside of the hind wing in both sexes is grey in *M. aeluropis* with large well-marked spots (Figs 3, 4); bluish grey in *M. cyanophracta* with small poorly defined spots (Figs 7, 8) and reddish grey in both *M. halyzia* and *M. gracillima.* In



Figs 23, 24. Female genitalia: (23) *M. halyzia* ANIC Slide M587; (24) *M. gracillima* sp. n. Aust. Mus. Slide.

M. gracillima the spots are more distinct and the dark brown outline is better developed on the proximal margins of the spots (Figs 15, 16); the spot in the submedian row between veins CuA_2 and 1A+2A is distinct in *M. gracillima* and indistinct in *M. halyzia* (Figs 11, 12). The females of *M. aeluropis* are distinctive with large bright yellow fore wing spots (Fig. 2) while females of the other species are similar to one another on the upperside (Figs 6, 10, 14) but *M. cyanophracta* is distinctively coloured beneath. The hind wings of *M. halyzia* and *M. gracillima* are similar in shape but those of *M. cyanophracta* and *M. aeluropis* are slightly more rounded at the tornus.

The terminal segment of the labial palpus of *M. gracillima* and *M. cyanophracta* is slightly shorter than in *M. halyzia* and *M. aeluropis.* The nudum of the antenna contains 15 segments in *M. gracillima*; 15-16 in *M. cyanophracta*; 15-17 in *M. halyzia* and 16-17 in *M. aeluropis*. The tip of the apiculus is blunter in *M. cyanophracta* and *M. gracillima* than in *M. halyzia* and *M. aeluropis.* The base of the terminal segment in the apiculus is

about half as broad as the broadest segment in the former two species and less than half as broad in the latter two species.

M. gracillima is smaller than the other species; the fore wing length in each of the two males is 14 mm. Males of *M. halyzia* average about 15-16 mm; *M. cyanophracta* average about 15 mm but some are smaller and *M. aeluropis* average about 17 mm.

The male genitalia of *M. gracillima* differ markedly from those of the other species of *Mesodina* (Figs 17-20). The aedeagus is much narrower, the valva is narrower, the harpe is narrow and relatively pointed and the ventral margin of the valva is almost straight. In the female genitalia the sterigma is differently arranged, the ductus bursae is much narrower and the posterior half of the corpus bursae is narrow compared with the other species of *Mesodina* (Figs 21-24).

The genitalia of both sexes of all four taxa show marked differences and these differences are as marked as the differences in genitalia between *M. halyzia* and *M. aeluropis.* The genitalia of *M. gracillima,* in particular, differ so markedly from those of *M. halyzia* that it must be considered a separate species. To continue to regard *M. cyanophracta* as a subspecies of *M. halyzia,* when in some characters it differs more from *M. halyzia* than *M. gracillima* does, seems untenable and it should be considered a separate species.

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